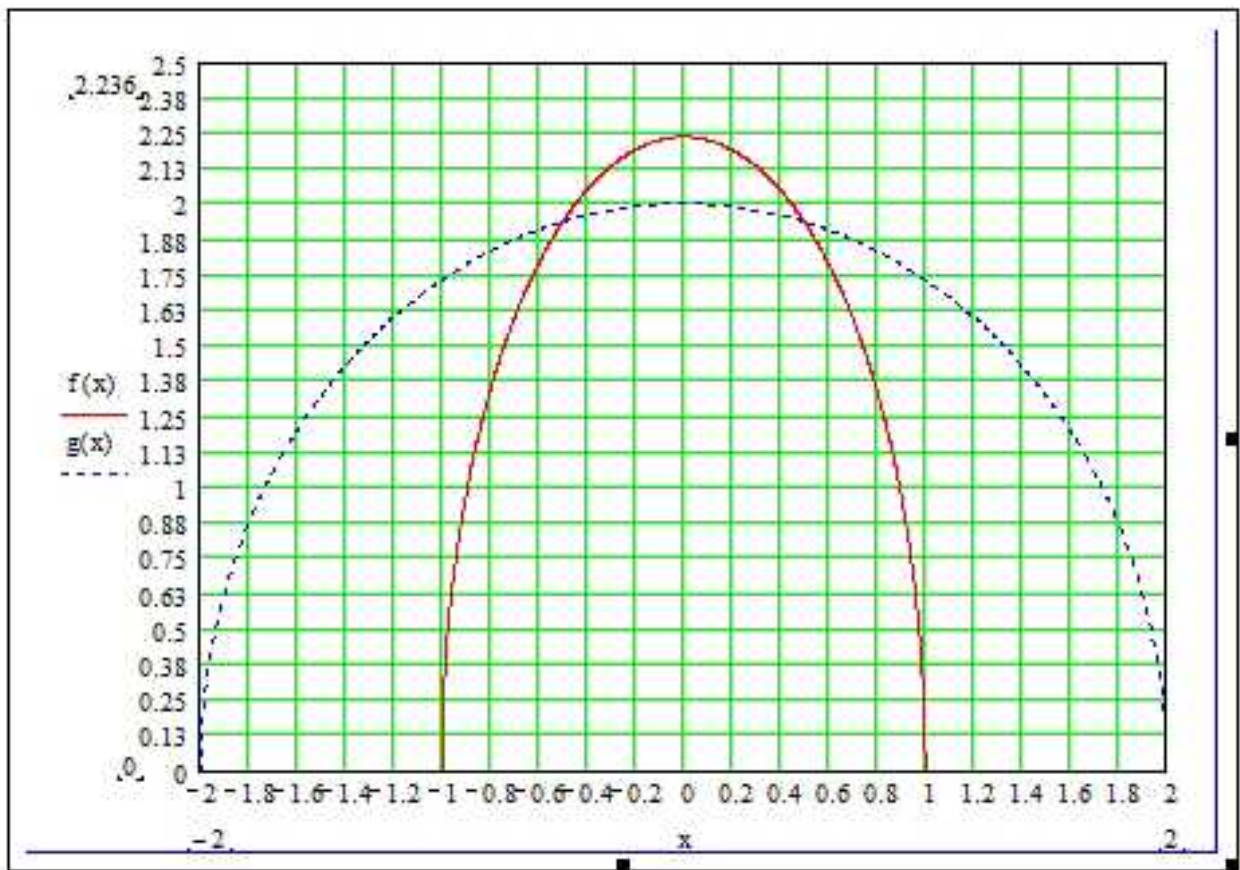


$$f(x) := \sqrt{5 - 5x^2}$$

$$g(x) := \sqrt{4 - x^2}$$



NJOKU VICTORY C

18/ENG04/024

ELECTRICAL ELECTRONICS

1) $5x^2 + y^2 = 5$ ①

$x^2 + y^2 = 4$ ②

By Elimination method

$4x^2 = \frac{1}{4}$

$x^2 = \frac{1}{4}$

$x = \pm \sqrt{\frac{1}{4}} = \pm 0.5$

Using the positive value and substituting

$5x^2 + y^2 = 5$

$5(0.5)^2 + y^2 = 5$

$\frac{5}{4} + y^2 = 5$

$y^2 = 5 - \frac{5}{4}$

$y = \pm \sqrt{\frac{15}{4}}$

$= \pm 1.93$

$\therefore y = 1.93 \quad x = 0.5$

Find $\frac{dy}{dx}$ of equ ① and ②

1) $5x^2 + y^2 - 5 = 0$

$\frac{dy}{dx} = \frac{-10x}{2y}$

② $x^2 + y^2 = 4$

$\frac{dy}{dx} = \frac{-2x}{2y}$

Substituting the values of x and y

$-10x/2y = -1.295$

$-2x/2y = -0.25$

Since $\frac{dy}{dx} = \tan \theta$

$\therefore \theta = \tan^{-1}(\frac{dy}{dx})$

$\theta_1 = \tan^{-1}(-1.295)$

$= -52.32$

$\theta_2 = \tan^{-1}(0.25)$

$= -14.52$

$\therefore \theta = |\theta_1 - \theta_2| = | -52.32 - (-14.52) |$

$= 37.8^\circ$